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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/718,652

11/24/2003

Shuji Nakamura

160-399

1183

23117

7590

12/22/2005

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901 NORTH GLEBE ROAD, 11TH FLOOR  
ARLINGTON, VA 22203

EXAMINER

SOWARD, IDA M

ART UNIT

PAPER NUMBER

2822

DATE MAILED: 12/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

✓ 18 24

<b>Office Action Summary</b>	<b>Application No.</b> 10/718,652	<b>Applicant(s)</b> NAKAMURA ET AL.	
	<b>Examiner</b> Ida M. Soward	<b>Art Unit</b> 2822	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 November 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 53-75 is/are pending in the application.  
     4a) Of the above claim(s) 73-75 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 53-66 and 72 is/are allowed.
- 6) ☒ Claim(s) 67-71 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 November 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 08/743,729.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |                                                                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                                                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                                                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>11/14/05, 6/20/05, 5/3/04, 11/24/03</u> | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

This Office Action is in response to the election filed November 14, 2005.

#### ***Election/Restrictions***

Applicant's election without traverse of claims 53-72 in the reply filed on November 14, 2005 is acknowledged.

#### ***Priority***

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). The certified copy has been filed in parent Application No. 08/743,729, filed on November 6, 1996.

#### ***Information Disclosure Statement***

The information disclosure statement filed 05/03/2004 and 11/24/2003 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

#### ***Double Patenting***

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The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 67-71 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 48-52 of copending Application No. 10/801,038. Although the conflicting claims are not identical, they are not patentably distinct from each other because Nakamura et al. (US 2004/0183063 A1) teach:

A nitride semiconductor device comprising: a first clad layer comprising an n-type nitride semiconductor; an active layer of a quantum well structure provided on the first clad layer, the active layer comprising a nitride semiconductor containing indium and gallium and having at least one well layer having a thickness not greater than 70 angstroms, wherein the well layer is placed on an underlying layer in a state lattice-mismatched with the underlying layer and includes a plurality of indium-rich regions and

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indium poor regions; and a second clad layer which is provided on the active layer and comprises a nitride semiconductor doped with an acceptor impurity;

The active layer doped with an impurity;

The impurity comprising silicon or germanium;

The impurity doped in the well layer; and

A nitride semiconductor device including a first n-type layer which comprises an n-type, aluminum-containing nitride semiconductor or n-type gallium nitride; and a second n-type layer which comprises an n-type, aluminum-containing nitride semiconductor, wherein the device has a third n-type layer which comprises an n-type, indium-containing nitride semiconductor between the first n-type layer and the second n-type layer.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Allowable Subject Matter***

Claims 53-66 and 72 are allowed.

The following is a statement of reasons for the indication of allowable subject matter: The prior art of record does not disclose, make obvious, or otherwise suggest the structure of the applicant's together with the other limitations of the independent claims, such as a second nitride semiconductor layer which is formed on the first surface side of the active layer at a location more distant from the active layer relative to

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the first nitride semiconductor layer, which has a band gap energy smaller than that of the first nitride semiconductor layer and which has a thickness larger than that of the first nitride semiconductor layer; and a third nitride semiconductor layer which is formed on the first surface side of the active layer at a location more distant from the active layer relative to the second nitride semiconductor layer and which has a band gap energy larger than that of the second nitride semiconductor layer. The dependent claims being further limiting and definite are also allowable.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to nitride semiconductor devices:

Chai (5,625,202)	Edmond et al. (5,739,554)
Imai et al. (5,602,418)	Kidoguchi et al. (5,751,013)
Nakamura et al. (5,578,839)	Ohba et al. (5,656,832)
Okazaki et al. (5,247,533)	Shakuda (5,838,929)
Shakuda (5,825,052)	Schetzina (5,670,798).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ida M. Soward whose telephone number is 571-272-

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1845. The examiner can normally be reached on Monday - Thursday 6:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

IMS

December 19, 2005

*J. M. Seward*  
*All 2822*